

a second semiconducting layer disposed around the first insulating layer,  
wherein

the second semiconducting layer being directly earthed at  $n$  points along said winding,  $n$  being an integral number, and  $n \geq 2$ ,

two of said  $n$  points being at ends of each winding,

an electric contact being interrupted in the second semiconducting layer at  $2(n-1)$  different interruptions between respective ends in each winding, and each of the interruptions for each winding being earthed by cross-connection.

29. A power transformer/reactor according to claim 28, wherein:

at least one point of said  $n$  points between both ends being indirectly earthed.

30. A power transformer/reactor according to claim 28, wherein:

at each interruption in the second semiconducting layer there is arranged a third semiconducting layer configured to reduce an amplification an electric field strength at the interruption.

31. A power transformer/reactor according to claim 30, wherein:

interruptions in the electric contact in the second semiconducting layers of the windings being due to an absence of a portion of the second semiconducting layer around a periphery of the high voltage cable down to the first insulating layer so that grooves surrounded by the second semiconducting layer are present.

32. A power transformer/reactor according to claim 30, wherein:

the second insulating layer being arranged onto respective of the grooves, beside each groove the second insulating layer covering a part of the second semiconducting layer on both sides of each groove,

a third semiconducting layer being disposed at the second insulating layer so that one end of the third semiconducting layer covers one edge of the second insulating layer and has electric contact to the second semiconducting layer, and that the other end of the third semiconducting layer does not cover the other edge of the second insulating layer but extends along part of the second semiconducting layer located under the second insulating layer.

33. A power transformer/reactor according to claim 32, wherein:  
the edges of the second semiconducting layer at said grooves slope such that the grooves have a least width at the first insulating layer.

34. A power transformer/reactor according to claim 33, wherein:  
the third semiconducting layer at the end covering the edge of the second insulating layer makes mechanical contact with the second semiconducting layer, and the other end of the third semiconducting layer does not make mechanical or electric contact with the second semiconducting layer.

35. A power transformer/reactor according claim 28, wherein:  
a conductor area of the conductor of the high voltage cable being in an inclusive range of 80 through 3000 mm<sup>2</sup>; and  
an outer cable diameter being in an inclusive range of 20 through 250 mm.

36. A power transformer/reactor according to claim 28, wherein:  
two of the interruptions are positioned between two consecutive direct earthing points.

37. A power transformer/reactor according to claim 28, wherein:  
each cross-connected earthing is formed by the second semiconducting layers of the different windings at each interruption being connected to one another and indirectly earthed.

38. A power transformer/reactor according to claim 37, wherein:  
2(n-1) interruptions are formed per winding and thus 3(n-1) connected sections of the second semiconducting layer per winding, and  
at an interruption q, where  $1 \leq q \leq 2(n-1)$ , of a different winding section r, where  $1 \leq r \leq 3(n-1)$ , of the second semiconducting layer of one winding is connected to section (r+1) of the second semiconducting layer of a consecutive winding, and that section r of the second semiconducting layer of the first winding is connected to section r of the second semiconducting layer of remaining windings, and that section r of the second semiconducting layer of a last winding and section (r+1) of the second semiconducting layer of the first

winding are connected to the indirect earthing, except when  $r$  is evenly divisible by 3 and for the last section, where  $r=3(n-1)$ .

39. A power transformer/reactor according to claim 28, wherein:  
each direct earthing is performed by a galvanic connection to earth.

40. A power transformer/reactor according to claim 28, wherein:  
each indirect earthing is performed by a capacitor connected between the second semiconducting layer and earth.

41. A power transformer/reactor according to claim 28, wherein:  
the indirect earthing is performed by an element connected between the second semiconducting layer and earth, having a non-linear voltage-current characteristic.

42. A power transformer/reactor according to claim 28, wherein:  
the indirect earthing is performed by a circuit element connected between the second semiconducting layer and earth, said circuit element having a non-linear voltage-current characteristic connected in parallel with a capacitor.

43. A power transformer/reactor according to claim 42, wherein:  
the indirect earthing being performed by at least one of the circuit element, another element connected between the second semiconducting layer and earth, having a non-linear voltage-current characteristic, and a capacitor connected between the second semiconducting layer and earth.

44. A power transformer/reactor according to claim 42, wherein:  
the element includes at least one of a spark gap, a gas-filled gas diode, a zener-diode and a varistor.

45. A power transformer/reactor according to claim 28, further comprising:  
a magnetizable core.

46. A power transformer/reactor according to claim 28, wherein the power transformer/reactor does not include a magnetizable core.

47. A power transformer/reactor according to claim 28, wherein:  
said first semiconducting layer and said insulating layer, and said insulating layer and said second semiconducting layer being arranged to adhere to one another even when the cable is bent.

48. A method for adjusting a high voltage cable for windings in a power transformer/reactor which high voltage cable comprises an electric conductor, around which there is arranged a first semiconducting layer, around the first semiconducting layer there is arranged a first insulating layer, and around the first insulating layer there is arranged a second semiconducting layer, comprising steps of:

connecting directly to earth the second semiconducting layer at n points of each winding, where n is an integral number, and two of said n points are arranged at both ends of each winding;

forming two interruptions between each pair of directly earthed points in electric contact in the second semiconducting layer; and

cross-connecting the second semiconducting layer of the windings at each interruption.

49. A method according to claim 48, further comprising:  
indirectly earthing at least one point in each winding between both ends of the second semiconducting layer.

50. A method according to claim 48, further comprising:  
applying a third semiconducting layer at each said interruption in the second semiconducting layer in order to reduce an amplification of electric field strength at each interruption.

51. A method according to claim 48, wherein:

said forming step includes removing the second semiconducting layer around a periphery of the high voltage cable down to the first insulating layer so as to form grooves surrounded by the second semiconducting layer.

52. A method according to claim 51, wherein:

said applying step includes

applying a second insulating layer over each groove in such a way that part of the second semiconducting layer is on both sides of each groove is additionally covered; and

applying a third semiconducting layer on the second insulating layer in such a way that the one end of the third semiconducting layer covers one edge of the second insulating layer and has electric contact to the second semiconducting layer, and the other end of the third semiconducting layer does not cover the other edge of the second insulating layer but extends along a part of the second semiconducting layer located under the second insulating layer.

53. A method according to claim 48, wherein said cross-connecting step includes:

connecting the second semiconducting layer of each winding at each interruption and indirectly earthing each interruption.

54. A method according to claim 53, wherein said cross-connecting step includes the following steps to achieve  $2(n-1)$  interruptions per winding and  $3(n-1)$  connected sections of the second semiconducting layer per winding:

connect at an interruption  $q$ , where  $1 \leq q \leq 2(n-1)$ , of the different windings, section  $r$ , where  $1 \leq r \leq 3(n-1)$ , of the second semiconducting layer of one winding to section  $(r+1)$  of the second semiconducting layer of a consecutive winding;

connecting section  $r$  of the second semiconducting layer of the first winding to section  $r$  of the second semiconducting layer of remaining windings; and

connecting section  $r$  of the second semiconducting layer of a last winding and section  $(r+1)$  of the second semiconducting layer of the first winding to an indirect earthing node, where  $r$  is evenly divisible by 3, except for the last section where  $r=3(n-1)$ .

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55. A mechanism for adjusting a high voltage cable for windings in a power transformer/reactor, comprising:

- the high voltage cable, which includes
  - an electric conductor,
  - a first semiconducting layer disposed around the electric conductor,
  - a first insulating layer disposed around the first semiconducting layer, and
  - a second semiconducting layer disposed around the first insulating layer;
- means for connecting directly to earth the second semiconducting layer at n points of each winding, where n is an integral number, and two of said n points are arranged at both ends of each winding;
- means for forming two interruptions between each pair of directly earthed points in electric contact in the second semiconducting layer; and
- means for cross-connecting the second semiconducting layer of the windings at each interruption.--

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IN THE ABSTRACT OF THE DISCLOSURE

After the last page, please insert the following Abstract of the Disclosure.